

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of supporting mobility in an Internet Protocol version 6 (IPv6)-based data network, the method characterised by the steps of:

generating a first stateful IPv6 autoconfiguration message at a mobile node, wherein said message contains an IP address capable of use for route maintenance ~~to/from~~ to and from said mobile node;

transmitting, by said mobile node, said generated message to a first access node, where said access node ~~adds~~ substitutes its address ~~to~~ in said message;

forwarding said generated message, by ~~an~~ said first access node, to a dynamic host configuration protocol (DHCP) Server;

analysing said message, at said DHCP server, to determine a route to deliver data one or more of to and/or from said mobile node and from said mobile node;

analysing said message, at said access node, to determine a route to deliver data one or more of to and/or from said mobile node and from said mobile node; ~~and~~

triggering one or more route update messages from said access node and said DHCP server to a number of network elements between said access node and said DHCP server in the IP based data network;

repeating said steps of generating, transmitting and forwarding for a second stateful IP autoconfiguration message that confirms the IP address of said mobile node when said mobile node attaches to a second access node, where said second access node substitutes its address in said second message; and

in response to receiving said second stateful IP autoconfiguration message, generating one or more route update messages by said second access node and said DHCP server.

2. (Currently Amended) The method of supporting mobility according to Claim 1, ~~the method further characterised by~~wherein generating one or more route update messages in response to receiving said second stateful IP autoconfiguration message comprises the steps of:

~~repeating said steps of generating, transmitting and forwarding for a second stateful IP autoconfiguration message when said mobile node attaches to a second access node;~~

analysing said second stateful IPv6 autoconfiguration message at said DHCP Server to determine that said ~~second~~ address used for route maintenance in said second message is inconsistent with said ~~first~~ address analysed in said first message; and

triggering a route update message based on said determination.

3. (Previously Presented) The method of supporting mobility according to Claim 2, the method further characterised by the step of:

transmitting, in response to said determination, a deletion message to said first access node or said second access node and a number of network elements between said DHCP Server and said first access node or said second access node, where the deletion message instructs said number of network elements to delete obsolete address information used for route maintenance to/from said mobile node.

4. (Currently Amended) The method of supporting mobility according to Claim 1, wherein one or more of said first and~~or~~ second stateful Internet Protocol autoconfiguration messages is a DHCPv6 'CONFIRM' message.

5. (Currently Amended) The method of supporting mobility according to Claim 1, wherein said address information used for route maintenance is based on ~~a distance-vector routing protocol, for example the~~ Triggered routing information protocol (RIP).

6. (Currently Amended) The method of supporting mobility according to Claim 1, further characterised by the step of:

updating route maintenance information by a plurality of nodes in the IP-based data network, ~~for example wherein the plurality of nodes comprises one or more of a DHCP Server, an access node such as a DHCP Relay, or an Access router, and an intermediate router.~~

7. (Currently Amended) An access node capable of operating in an Internet Protocol version 6 (IPv6)-based data network comprising:

a receiving function receiving ~~at least one first~~ a stateful Internet Protocol (IPv6) autoconfiguration message from a mobile node ~~that confirms an IP address of said mobile node~~, wherein said ~~at least one first IP~~ message comprises a mobile node IP address previously acquired by said mobile node from a different access node and capable of use for route maintenance to deliver data to and/or from said mobile node; and

a processor, operably coupled to said receiving function, wherein said processor analyses said ~~at least one first IP~~ message, to determine a route to deliver data one or more of to and/or from said mobile node and from said mobile node and triggers a transmission of one or more route update message from said access node to a number of network elements between said access node and a DHCP server in the IPv6-based data network.

8. (Currently Amended) A dynamic host configuration protocol (DHCP) Server capable of operating in an Internet Protocol version 6 (IPv6)-based data network and comprising:

a receiving function for receiving at least one ~~first~~ Internet Protocol (IP) message from a mobile node through a ~~first~~ second access node, wherein said at least one ~~first~~ IP message comprises an IPv6 message that confirms an IP address previously acquired by the mobile node from a first access node and comprises a number of addresses used for route maintenance to deliver data one or more of to and/or from said mobile node and from said mobile node via said ~~first~~ second access node; and

a processor, operably coupled to said receiving function, wherein said processor analyses said at least one ~~first~~ IP message, to determine a route to deliver data one or more of to and/or from said mobile node and from said mobile node and triggers a transmission of one or more route update message from said DHCP server to a number of network elements between ~~said access node and~~ said DHCP server and one or more of said first access node and said second access node in the IP based data network.

9. (Currently Amended) The DHCP Server according to Claim 8, wherein said DHCP Server receives and analyses the at least one ~~second~~ IP message ~~comprising a second set of addresses capable of use for route maintenance from said mobile node through a second access node, such that said processor analyses said at least one second IP message to determine whether said second set of addresses are consistent with said first a set of addresses maintained by the DHCP Server in association with the mobile node.~~

10. (Currently Amended) The DHCP Server according to Claim 9, wherein said DHCP Server further characterised by said processor, in response to said determination, triggering ~~a one or more~~ route update messages to one or more of said first access node ~~or and triggering a route update message to~~ said second access node to delete obsolete address information used for route maintenance ~~to/from~~ to and from said mobile node.

11. (Currently Amended) The DHCP Server according to Claim ~~& 2~~, wherein said at least one first IP message and said at least one second IP message are IPv6 messages.

12. (Currently Amended) The DHCP Server according to Claim 9, wherein one or more ~~of~~ said at least one ~~first~~ IP message ~~and/or said at least one second IP message~~ is an IPv6 stateful autoconfiguration 'CONFIRM' message.

13. (Currently Amended) The DHCP Server according to Claim ~~& 9~~, the DHCP Server further characterised by:

a memory element, operably coupled to said processor, containing a router table for storing route maintenance information extracted from said ~~first and/or second~~ IP message.

14. (Previously Presented) A data communication network adapted to incorporate the DHCP Server of Claim 8.

15. (Currently Amended) The data communication network according to Claim 14, wherein one or more of said first access node ~~and/or~~ said second access node are Access Routers collocated with DHCPv6 Relay functions.

16. (Currently Amended) The data communication network according to Claim 14, wherein the data communication network includes a number of routers located one or more of between said first access node and said DHCP Server and ~~or~~ between said second access node and said DHCP Server in a substantially tree-type topology.

17. (Currently Amended) The data communication network according to Claim 14, wherein a communication link one or more of between said mobile node and said first access node and ~~or~~ between said mobile node and said second access node is a wireless access media communication link to facilitate a wireless link.

18. (Currently Amended) An IPv6 communication message transmitted from a DHCP Server to an access node via a number of routers, wherein the IPv6 communication message comprises one or more of route deletion instructions and ~~or~~ address deletion instructions generated in accordance with Claim 3.

19. (Currently Amended) A storage medium storing processor-implementable instructions ~~for controlling a processor~~ to carry out the method according to Claim 1.

20. (Currently Amended) An apparatus adapted to perform the method steps according to Claim 1.

21-22. (Cancelled)